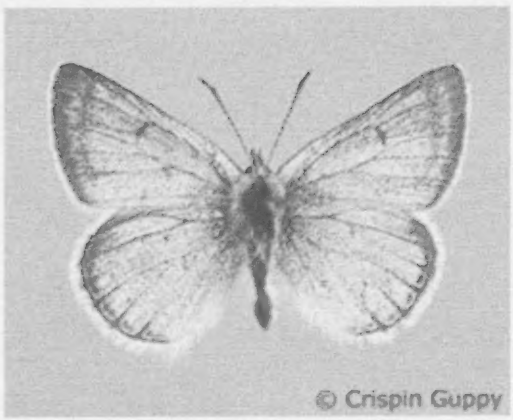
COSEWIC
Assessment and Status Report

on the

Island Blue
Plebejus saepiolus insulanus

in Canada



ENDANGERED
2000

COSEWIC
Committee on the Status
of Endangered Wildlife
in Canada

COSEPAC
Comité sur la situation
des espèces en péril
au Canada

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Également disponible en français sous le titre Évaluation et Rapport de situation du COSEPAC sur le Bleu insulaire (*Plebejus saepiolus insulanus*) au Canada.

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Island Blue — ©Crispin Guppy

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COSEWIC
Assessment Summary

Assessment summary — November 2000

Common name
Island Blue

Scientific name
Plebejus saepiolus insulanus

Status
Endangered

Reason for designation
An extremely restricted endemic of southern Vancouver Island, this species was last recorded in 1979. There remains a remote possibility that it still persists in poorly surveyed habitat.

Occurrence
British Columbia

Status history
Designated Endangered in November 2000. Assessment based on a new status report.

COSEWIC
Executive Summary

Island Blue
Plebejus saepiolus insulanus

The Island Blue, *Plebejus saepiolus insulanus*, occurred on Vancouver Island from Saratoga Beach south to Victoria. It has not been seen since 1964 and is considered to be extinct. Elsewhere, other subspecies of *Plebejus saepiolus* feed on clover, *Trifolium,* species. Urbanization, introduced weeds and/or control of forest fires may have eliminated the larval hostplant for the Island Blue.

COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) determines the national status of wild species, subspecies, varieties, and nationally significant populations that are considered to be at risk in Canada. Designations are made on all native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fish, lepidopterans, molluscs, vascular plants, lichens, and mosses.

COSEWIC MEMBERSHIP

COSEWIC comprises representatives from each provincial and territorial government wildlife agency, four federal agencies (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biosystematic Partnership), three nonjurisdictional members and the co-chairs of the species specialist groups. The committee meets to consider status reports on candidate species.

DEFINITIONS

Species	Any indigenous species, subspecies, variety, or geographically defined population of wild fauna and flora.
Extinct (X)	A species that no longer exists.
Extirpated (XT)	A species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A species facing imminent extirpation or extinction.
Threatened (T)	A species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events.
Not at Risk (NAR)**	A species that has been evaluated and found to be not at risk.
Data Deficient (DD)***	A species for which there is insufficient scientific information to support status designation.

* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

** Formerly described as "Not In Any Category", or "No Designation Required."

*** Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list.

Environment Canada / Environnement Canada
Canadian Wildlife Service / Service canadien de la faune
Canada

The Canadian Wildlife Service, Environment Canada, provides full administrative and financial support to the COSEWIC Secretariat.

COSEWIC Status Report

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Island Blue

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CLASSIFICATION AND NOMENCLATURE

Until very recently, the Island Blue, *Plebejus saepiolus insulanus* (Blackmore, 1919) (Lepidoptera: Lycaenidae) was considered to be restricted to southeastern Vancouver Island, but there is confusion in the application of the *insulanus* subspecies name in the United States. In Oregon, the *insulanus* subspecies name was used for a few isolated populations that occur on the immediate coast (Hinchliff, 1994). In Washington there are no known populations on the immediate coast. The populations further inland in the Olympic Mountains are classified as belonging to the subspecies *saepiolus* (Hinchliff, 1996). Since subspecies are normally considered to be contiguous, similar populations (Hinchcliff, 1994, 1996), usage of the name *P. s. insulanus* for the Oregon and Washington populations is incorrect.

By contrast, Scott (1986) uses the subspecies name *insulanus* to apply to all *P. saepiolus* populations from northwest California through western Oregon and Washington and southwest British Columbia. This interpretation is much too inclusive.

Regardless of the application of the taxon name in the United States, the taxonomic status in Canada will not change. The Vancouver Island populations are a distinct subspecies found nowhere else in Canada.

DISTRIBUTION

Plebejus saepiolus insulanus was found in Canada only on Vancouver Island, British Columbia (Figure 1). Museum records (Appendix I) indicate that the subspecies occurred only on the east side of Vancouver Island from Saratoga Beach south to Victoria. Historically this was considered the entire world distribution of the Island Blue (Jones, 1951), making the butterfly a Canadian endemic species. Recent application of the subspecies name Island Blue to coastal Oregon populations of *P. saepiolus* (Hinchliff, 1994) but not to coastal Washington populations (Hinchliff, 1996) is an error.

PROTECTION AND STATUS

Guppy (personal communication) erroneously reported a 1993 population of the Island Blue, but the voucher specimens were identified as *Glaucopsyche lygdamus*, not the Island Blue. There are no known records of *P. s. insulans* since 1964. I did not encounter the Island Blue in an extensive field survey I did in 1995 in appropriate habitat throughout southeastern Vancouver Island north to Comox. Thus the subspecies is presumed Extinct. The revised TNC ranking is G5T5; N1; S1.

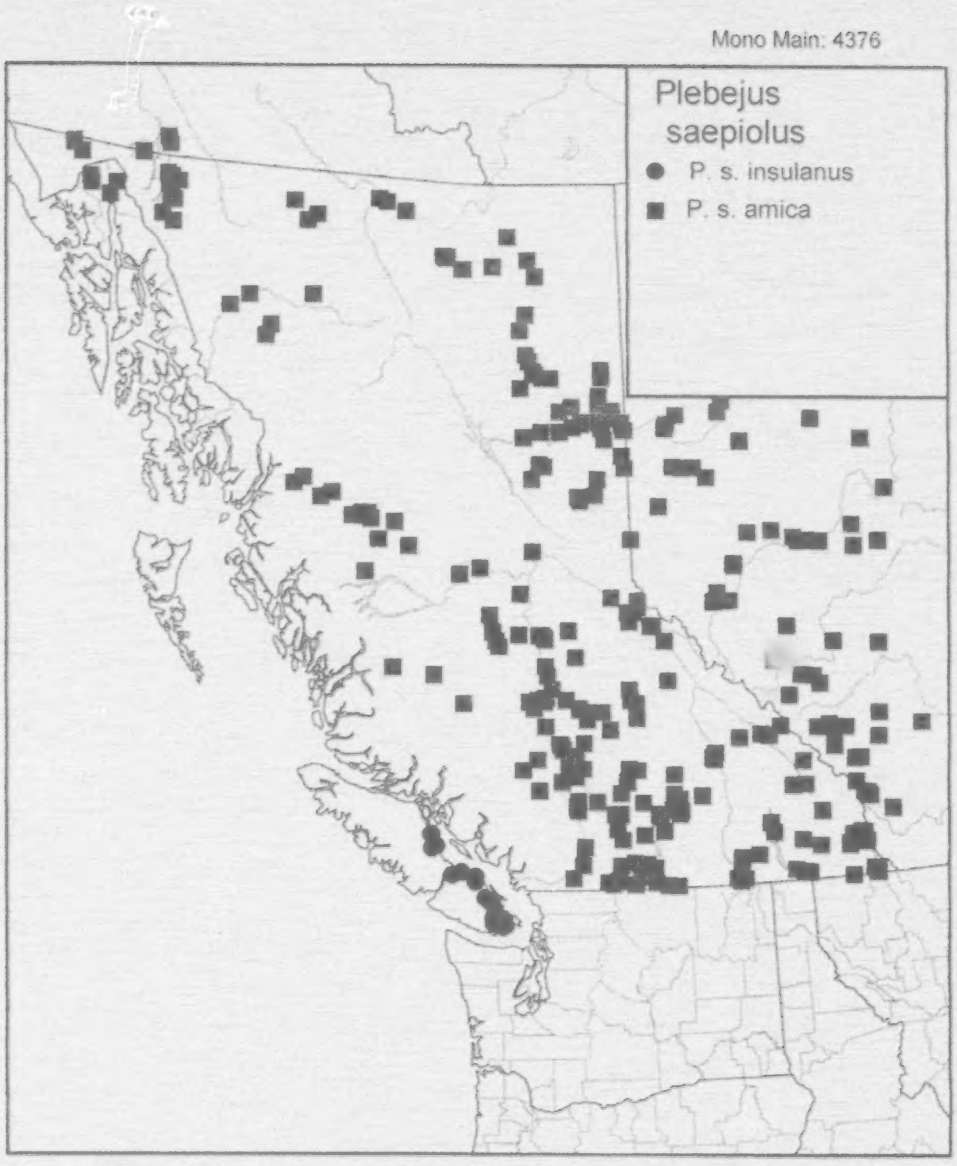

Figure 1. Global distribution of the Island Blue (dots), restricted to the east side of Vancouver Island, British Columbia

Since Vancouver Island north of Comox has never been surveyed at the peak flight time for the Island Blue, there is a remote possibility that the butterfly may still exist there. If the Washington and Oregon populations of this species were to be accepted as *P. s. insulans*, the Island Blue would be extirpated in Canada.

POPULATION SIZE AND TREND

Since the Island Blue has not been seen since 1964, and since there are no data from earlier years, population size and trends are unknown.

HABITAT REQUIREMENTS

Nothing is known about the habitat of other subspecies of *P. saepiolus* on Vancouver Island. Elsewhere, the species requires open but not dry areas with enough moisture to support the larval foodplant, *Trifolium* sp, which probably means that the species occurs in disturbed areas.

GENERAL BIOLOGY

The larvae of *P. saepiolus* require members of the *Trifolium* genus as their specific larval foodplant (Emmel & Emmel, 1973). One clover species native to Vancouver Island, *T. wormskjoldii* Lehn., has been recorded as a foodplant of this butterfly species (Scott, 1986). It is possible that non-native plant species have invaded disturbed sites on Vancouver Island and thus *Trifolium* sp. is not as common as it once was. The coastal Oregon populations of *Trifolium* sp. are known to be affected by weeds (Hammond, personal communication).

Almost nothing is known about the biology of the Island Blue. Museum data indicate that the butterfly had a single generation per year with the adults flying from late May to early August, depending on elevation and the time when warm spring weather begins on Vancouver Island.

LIMITING FACTORS

Other subspecies of *P. saepiolus* require *Trifolium* spp as their specific larval foodplants (Emmel & Emmel, 1973). No other limiting factors are known and other subspecies of the butterfly range widely in Canada the United States.

SPECIAL SIGNIFICANCE

The adults and larvae of *P. saepiolus* are normally found near clover along open streams and moist disturbed sites, such as old roads or campgrounds. The recent rarity of this species probably reflects the successful spread of many introduced weed species which grow in these disturbed sites. This butterfly has similar requirements to the Dun Skipper, *Euphyes vestris vrstris*, another imperiled butterfly.

RECOMMENDATIONS

The Island Blue is considered to be extinct, but if future field work should discover a population of the Island Blue on Vancouver Island, immediate protection for the butterfly would be extremely important. If any United States populations can be assigned to the Island Blue subspecies, it would become possible to attempt to re-establish populations of the butterfly on Vancouver Island. It is my opinion, however, that none of the populations in the United States belong to the same subspecies as the Island Blue.

EVALUATION

The last positively identified specimen of the Island blue, dates back to 1964. As stated above, because there are no more recent records of the species, it is recommended that the Island Blue be assigned the status of Extinct.

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Jones, J. R. J. Llewellyn Jones. 1951. An annotated check list of the Macrolepidoptera of British Columbia. Entomological Society of British Columbia Occasional Papers 1: i-v, i-ii, 1-148.

Scott, J. A. 1986. The butterflies of North America. Stanford University Press. Stanford, CA. i-xii, 1-583, pls. 1-64.

Biography: Jon H. Shepard

Mr. Jon H. Shepard has worked since 1994 as a consultant on Lepidopteran biodiversity in British Columbia. Before that, he taught at Selkirk College and at Notre Dame University in Nelson (BC), Athabasca University, Brandon University, and Northwest College. He spent the entire summer of 1995 in the field on southeast Vancouver Island examining the present-day distribution of that area's butterflies. He is the author of twelve papers on butterflies in peer reviewed scientific journals, chapters in three books, and four book reviews. In addition, Shepard has attended and presented papers at meeting as varied as the AAAS annual meeting and meetings of the Lepidopterist's Society. Most summers find him in the field in alpine and arctic areas where he works on the biogeography and systematics of Lepidoptera.

APPENDIX I. List of museum specimens of the Island Blue

Locality	Date (y/m/d)	Collector	Held at
Bare Mt., BC	1993-6-15	J. McDunnough	CNC
Bevan, BC	1993-7-6	J. McDunnough	CNC
Bevan, BC	1993-8-6	J. McDunnough	AMNH
Big Sicker, BC	1916-7-3	?	RBCM
Mt. Copper Canyon, BC	1916-7-1	?	RBCM
Courtenay, BC	1931-6-5	dos Passos Coll.	AMNH
Courtenay, BC	1933-6-27	J. McDunnough	AMNH
Courtenay, BC	1933-6-27	J. McDunnough	CNC
Courtenay, BC	1933-7-3	J. McDunnough	AMNH
Courtenay, BC	1933-7-4	J. McDunnough	CNC
Errington, BC	1927-7-1	G. H. Larnder	RBCM
Errington, BC	1927-7-4	G. H. Larnder	RBCM
Errington, BC	1927-7-5	G. H. Larnder	RBCM
Errington, BC	1927-7-10	G. H. Larnder	RBCM
Esquimalt, BC	1990-6-17	A. J. Crocker	AMNH
Fitzgerald, BC	1921-6-3	[L. J. Lewis]	QM
Fitzgerald, BC	1921-6-3	Lewis J. Clark	QM
Fitzgerald, BC	1921-6-9	L. J. Lewis	QM
Francis Park, BC	1963-5-27	G. A. Hardy	RBCM
Francis Park, BC	1963-6-6	G. A. Hardy	RBCM
Goldstream, BC	1930-5-24	?	RBCM
Goldstream, BC	1904-5-15	?	RBCM
Goldstream, BC	1918-5-31	E. H. Blackmore	CNC
Goldstream, BC	1919-5-31	?	RBCM
Goldstream, BC	1919-5-31	G. O. Day	RBCM
Goldstream, BC	1919-6-8	?	RBCM
Goldstream, BC	1920-5-31	G. O. Day	RBCM
Goldstream, BC	1921-5-21	G. O. Day	RBCM
Goldstream, BC	1926-4-28	W. Downes	CNC
Lost Lake, BC	1924-6-8	W. H. A. Preece	AMNH
Malahat, BC	1952-7-10	G. A. Hardy	RBCM
Malahat, BC	1960-6-17	G. A. Hardy	RBCM
Malahat, BC	1961-6-16	G. A. Hardy	RBCM
Malahat, BC	1961-6-22	G. A. Hardy	RBCM
Mt. Arrowsmith, BC	1962-8-20	R. Guppy	CAS
Mt. Arrowsmith, BC	1963-8-9	Richard Guppy	AMNH
Mt. Benson, BC	1962-8-14	R. Guppy	CAS
Mt. Finlayson, BC	1959-8-18	G. A. Hardy	RBCM
Mt. Finlayson, BC	1960-5-?	?	RBCM
Mt. Finlayson, BC	1960-5-28	G. A. Hardy	RBCM
Mt. Finlayson, BC	1960-6-2	G. A. Hardy	RBCM
Mt. Finlayson, BC	1960-6-8	G. A. Hardy	RBCM
Mt. Malahat, BC	1959-6-20	R. Guppy	CAS
Mt. Sicker, BC	1963-6-6	Richard Guppy	AMNH
Observatory Hill, BC	1960-6-4	G. A. Hardy	RBCM
Observatory Hill, BC	1963-6-6	G.A. Hardy	RBCM
Quamichan L., BC	1905-6-5	G. O. Day	RBCM
Royal Oak, BC	?	?	RBCM
Saanich, BC	1929-5-10	W. H. A. Preece	CNC
Saratoga Beach, BC	1933-6-28	J. McDunnough	CNC
Saratoga Beach, BC	1933-7-7	J. McDunnough	CNC
Shawinigan L., BC	1963-6-29	Richard Guppy	AMNH
Spectacle L., BC	1957-5-31	G.A. Hardy	RBCM

Locality	Date (y/m/d)	Collector	Held at
Spectacle L., BC	1960-5-24	G.A. Hardy	RBCM
Spectacle L., BC	1960-6-6	G.A. Hardy	RBCM
Spectacle L., BC	1960-6-14	G.A. Hardy	RBCM
Victoria, BC	1901-7-1	?	RBCM
Victoria, BC	1902-5-23	?	AMNH
Victoria, BC	1903-5-16	E. M. Anderson	CNC
Victoria, BC	1910-5-23	A. J. Crocker	AMNH
Victoria, BC	1910-5-31	A. J. Crocker	AMNH
Victoria, BC	1911-5-5	E. H. Blackmore	AMNH
Victoria, BC	1911-6-11	E. H. Blackmore	AMNH
Victoria, BC	1916-5-11	E. H. Blackmore	CNC
Victoria, BC	1916-5-24	E. H. Blackmore	CNC
Victoria, BC	1920-5-31	L. J. Lewis	QM
Victoria, BC	1920-5-31	Lewis J. Clark	QM
Victoria, BC	1921-5-12	W. Downes	CNC
Victoria, BC	1921-7-7	L. J. Lewis	QM
Victoria, BC	1921-7-7	Lewis J. Clark	QM
Victoria, BC	?-5-27	A. J. Crocker	AMNH
Victoria, BC	?-6-15	?	RBCM
Victoria, BC	?-6-17	?	RBCM
Victoria, BC	?-6-18	A. J. Crocker	AMNH
Wellington, BC	1920-6-21	?	RBCM
Wellington, BC	1903-6-11	?	RBCM
Wellington, BC	1904-6-25	?	RBCM
Wellington, BC	1905-6-22	?	RBCM
Wellington, BC	1960-7-18	R. Guppy	CAS
Wellington, BC	?	?	RBCM

AMNH – American Museum of Natural History
CNC – Canadian National Collection of Insects and Arachnids
RBCM – Royal British Columbia Museum